



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/581,193

06/01/2006

Tetsuya Murakami

1560-0459PUS1

3562

2292 7590 06/09/2011
BIRCH STEWART KOLASCH & BIRCH
PO BOX 747
FALLS CHURCH, VA 22040-0747

EXAMINER

KNUTSON, JACOB D

ART UNIT

PAPER NUMBER

3611

NOTIFICATION DATE

DELIVERY MODE

06/09/2011

ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/581,193	Applicant(s) MURAKAMI ET AL.	
	Examiner JACOB KNUTSON	Art Unit 3611	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 May 2011.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-7 and 9 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-7 and 9 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

Continued Examination Under 37 CFR 1.114

Receipt is acknowledged of a request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e) and a submission, filed on 5/25/11.

Claim Rejections - 35 USC § 103

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims **1 – 7 and 9 are** rejected under 35 U.S.C. 103(a) as being unpatentable over **Nagamatsu et al. (US 2004/0206199 A1)**, in view of **Kodaira (US 6,427,799 B1)**.

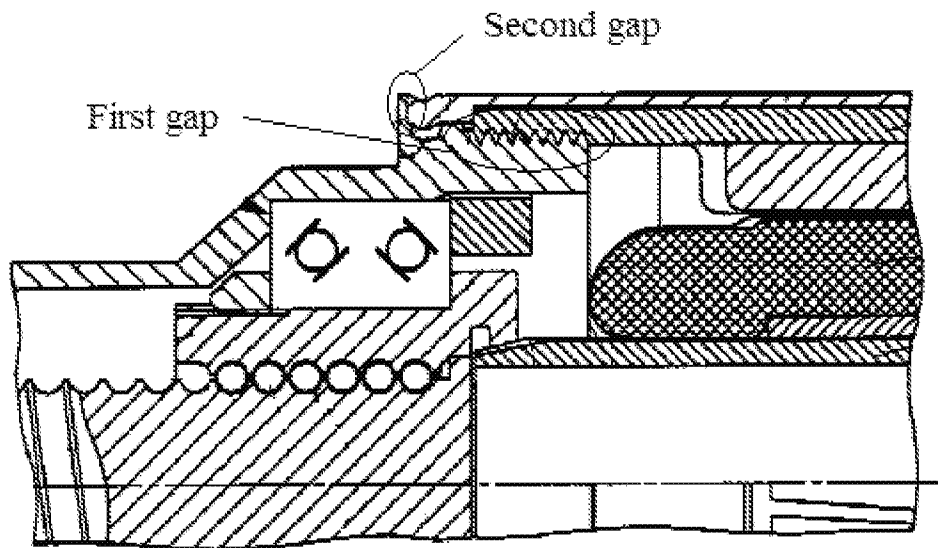
For claim 1, Nagamatsu et al. discloses a vehicle steering apparatus comprising: a housing 2 for supporting coaxially a steering shaft 1 and a rotating cylinder 51, said rotating cylinder being provided with a screw mechanism 50 52 and 53 constructed between said rotating cylinder and said steering shaft for moving in an axial direction for the purpose of steering and being rotated by a transmission from a steering motor, said housing being constructed in a separated form having of first and second housings 21 and 22, said first and second housings being fit to each other by a spigot-joint fitting on an outer side of a retaining part of a thrust bearing 54 for thrust-supporting said rotating cylinder, wherein a first gap is provided in a part that constitutes a part of the spigot-joint fitting part of said first and second housings and that is located radially outward from on an outer side of a fixing nut 56 screwed into said retaining part in order to apply a tightening force on said thrust bearing from one side, and wherein said first

Art Unit: 3611

gap that constitutes a part overlaps, in an axial direction, with a screwing region between said retaining part and said fixing nut screwed into said retaining part, and [wherein said fixing nut is in direct contact with said thrust bearing, and within said first gap, an increase in an outer diameter of the retaining part caused when the fixing nut is tightened is absorbed] as stated in page 3, paragraph [0035], the prior art has all the elements and performs the tightening of the fixing nut to cause the increase in an outer diameter.

Nagamatsu et al. does not disclose a second gap on a part of a spigot-joint fitting being smaller than the first gap, the retaining part has a first portion whose diameter is smaller than a diameter of a second portion thereof which secures concentricity of the first and second housing, thereby providing a first gap, and the first gap is provided adjacent to the second gap in the axial direction.

However, Kodaira discloses a first gap being larger than a second gap on a part of a spigot-joint fitting part of two housings A and B where said first gap is provided as best shown in Fig. 3. Kodaira discloses the retaining part has [a first portion, as shown in the drawing below at the location of the screwing region, whose diameter is smaller than a diameter of [a second portion] as shown below at the location with a screwing region, thereof which secures concentricity of the first and second housing, thereby providing a first gap], and the first gap is provided adjacent to the second gap in the axial direction as shown in the drawing below. The second gap being miniscule as it may be, there still exists a space or gap in between the housings.



At the time of the invention, it would have been obvious to a person of ordinary skill in the art to alternatively use the concept and function of the housing, retaining part, and groove of Kodaira with the steering apparatus of Nagamatsu et al. to allow for an adhesive to be applied which allows for a securer fit.

For claim 2, Nagamatsu et al. modified as above discloses the vehicle steering apparatus wherein said screw mechanism is a ball screw mechanism 50 52 and 53 and said ball screw mechanism is constructed such that a screw groove 50 formed in an outer periphery of said steering shaft is engaged with a screw groove 52 formed in an inner periphery of said rotating cylinder via a large number of balls 53.

For claim 3, Nagamatsu et al. modified as above discloses the vehicle steering apparatus further comprising an escape stopping ring 57, said escape stopping ring being in contact with an end face of said fixing nut from an opposite side of said thrust bearing as shown in Fig. 3.

For claim 4, Nagamatsu et al. modified as above discloses the vehicle steering apparatus wherein said thrust bearing is a twin angular contact ball bearing having a common outer race tightened by said fixing nut.

For claim 5, Nagamatsu et al. modified as above discloses the vehicle steering apparatus wherein said thrust bearing is a shield bearing provided with a shield member on both sides of rolling elements.

For claim 6, Nagamatsu et al. modified as above discloses the vehicle steering apparatus wherein said rotating cylinder has, in an outer periphery, a gear wheel that engages with a pinion of an output shaft of said steering motor.

For claim 7, Nagamatsu et al. modified as above discloses the vehicle steering apparatus wherein said gear wheel has resin gear teeth.

For claim 9, Nagamatsu et al. modified as above discloses the vehicle steering apparatus wherein said gap is located directly above the screwing region between said retaining part and said fixing nut screwed into said retaining part.

Response to Arguments

Applicant argues the prior art does not disclose “said first gap substantially overlaps, in an axial direction, with a screwing region between said retaining part and said fixing nut screw into said retaining part”. The combination of Nagamatsu et al. in view of Kodaira, more specifically, Kodaira shows a first gap, shown in the drawing above, substantially overlaps, in an axial direction, with a screwing region between said retaining part (the part the fixing nut screws into) and said fixing nut screw 32 into said retaining part. The art is combined to show the

Art Unit: 3611

benefits of using a first housing, and a second housing and intermediate yoke with respective threaded portions to allow for increased strength while not sacrificing for increased weight, thickness and size. The applicant is claiming a first and second gap, which is an opening in a structure or surface. The prior art has multiple gaps throughout the apparatus, whether small or large.

In response to applicant's argument that the prior art does not disclose "wherein tightening of the fixing nut will cause the first gap to be absorbed", a recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim.

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to whose telephone number is 571-270-5576. The examiner can normally be reached on Monday to Friday, 12:30 PM - 9:00 PM EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Lesley Morris can be reached on 571-272-6651. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/JK/
June 3, 2011

/Tony H. Winner/
Primary Examiner, Art Unit 3611
June 3, 2011